

Attorney ~~_____~~ No. 19480-2506RE
Reissue: 6,005,534

13

specifically developed software, which will not be described in more detail here.

There are available at present programs such as Powerpoint® and similar programs, which will not function effectively for three reasons. The programs are very large and load the computers unnecessarily. These programs also contain a large amount of resources that are not required to show pictures or exposures. For instance, advertising exposure also differs greatly from picture or exposure presentations of the Powerpoint® type. Powerpoint® thus lacks resources that advertising agencies may wish to use. Primarily morphing, which is used progressively more often in advertising programs, for instance in television broadcasting. Morphing is a process in which the image of one object is smoothly changed into that of another object, for instance human beings to animals and/or vice versa. It must be possible to present the picture sequences to be shown in a manner more interesting than solely a dispositive presentation, this being one of the objects achieved with the invention. This touches on the border region between still pictures, moving pictures and film where the methods overlap one another. It is also probable that external mediators 24 of picture or exposure presentations will use sound. It is therefore wiser to write specific software which includes those resources that external mediators 24 desire, i.e. cultivate software. It will also be easier to update an own developed program with own resources at a future date.

In this way, the external mediators 24 do not need to bind themselves to the use of the Powerpoint® format. They simply deliver pictures in desired format. However, it may be necessary to limit the size of a picture or exposure.

In order to achieve the inventive digital information system, it is necessary to provide a number of drive routine means, such as communication drive routine means for transferring information between external mediators 24 and the control centre 12, copying means for copying to the various databases 30, 36, drive routine means for composing the picture or exposure material to be shown, exposure handlers, drive routine means for a radio network, control means in the station computer 34 which feed pictures or exposures to the projector computers 38 in accordance with the exposure list, function control means in the projector computers 38 and in the station computers 34, drive routine means which interrupt a display when the display screen is hidden from projectors 22, and drive routine means for projectors 22. Effective programs exist for copying between the different databases, for instance Retrospect®.

The drive routine means which interrupts the showing of exposures when the exposure means is hidden from the projector 22, or vice versa, can also be used as feedback and monitoring in statistical analyses of the subway administrator in the present invention as to whether or not trains are running in accordance with the timetable, this being of interest for drawing up the exposure list and future updating of said list, among other things. This is effected by registration in the station computer 34 when a picture or exposure showing is interrupted. Registration may be effected, for instance, via brake routines for the computer 34. The registration may also trigger a clock (counter, timer) to register the time during which a vehicle obstructs the screen of the projector 22 respectively.

It will be understood that the aforescribed embodiments of the present invention are not intended to limit the scope of the invention, but are merely intended as preferred modes of carrying out the invention. The invention includes other embodiments apparent to the person skilled in this art from the scope of the following claims.

14

We claim:

1. A method of dynamically coordinating and controlling projectors in a digital information system to display information in public places on at least one display device, said digital information system including a computerized control center having a plurality of communication interfaces, a plurality of computerized devices situated in proximity to said public places and being connected to said control center, wherein each of said devices controls at least one projector, and at least one subscribing information mediator having communications drive routine means for selectively and transparently connecting to said control center, said method comprising:

receiving, by said control center, display information transmitted by said mediators at any time, said display information including booking information, specified by said at least one mediator, for reserving and controlling a time-period to display said display information;

generating, organizing, and dynamically updating an exposure list in real time, by an exposure handler included in said control center, in accordance with said display information, said exposure list also containing projector control instructions based on said reservation information;

coordinating and controlling select ones of said projectors by said computer devices, in response to said projector control instruction contained in said exposure list, in order to display said display information on said display device in real time,

wherein said display information in said exposure list specifies a content of display, a location of display, a timing of display, and a duration of display such that said content, said location, said timing, and said duration are capable of being independently selected, and said exposure list enables each of said select projectors to independently and instantaneously receive said display information through said computerized devices.

2. The method of claim 1, further including a system administrator for updating said exposure list with elective information at any time.

3. The method of claim 2, wherein said coordinating and controlling includes interrupting said display of information by said select projectors when said display is hidden, obstructed, or otherwise visibly unavailable in said public place.

4. The method of claim 3, further including shielding lenses of said select projectors from dirt with protective devices.

5. The method of claim 4, further including coupling said select projectors to a projector computer for controlling and feeding said display information to said projectors being controlled by a station computer included in said computerized devices, said projector computer having a corresponding memory buffer for accommodating subsequently arriving display information while display information of a current display is erased from said buffer memory.

6. The method of claim 5, further including a projector computer included in a station computer within said computerized devices for controlling and feeding display information to said projectors, said projector computer having a corresponding memory buffer for accommodating subsequently arriving display information while display information of a current display is erased from said buffer memory.

7. The method of claim 6, further including databases within said station computer situated in one of said public places, said databases include display information contained

Attorney L

No. 19480-2506RE
Reissue: 6,005,534

15

In said exposure list, said exposure list information capable of being copied into databases of other selected station computers situated in other public places.

8. The method of claim 7, further including a plurality of reserved instruction fields in said exposure list for updating display information with said control instructions received from said information mediators via one of said communication interfaces.

9. The method of claim 8, further including placing said control instructions in a queue when said exposure list lacks instruction fields for updating said control instructions.

10. The method of claim 9, further including implementing a detector for determining whether a station computer (34) is nonfunctional in order to enable projectors being controlled by said nonfunctional station computer to be remotely controlled by a station computer situated at a different public place.

11. The method of claim 10, wherein said interrupting of display is used for monitoring by a system administrator to determine whether vehicles are running according to a schedule.

12. The method of claim 11, further including an electronic display with a control computer for each of said computerized devices such that said select projectors supply information to be displayed on said electronic display.

13. A system for dynamically coordinating and controlling projectors to display digital information on at least one display device in public places, said system comprising:

a computerized control center for processing said display information and having a plurality of communications interfaces to support data transmissions, said control center including an exposure handler for generating, organizing, and dynamically updating an exposure list in real time in accordance with said display information, said exposure list also containing projector control instructions based on said display information;

at least one information mediator for transmitting said display information to said control center at any time, each of said mediators being electronically coupled to said computerized control center via one of said communication interfaces and selectively and transparently connecting to said control center through a communications drive routine means, said display information including booking information, specified by each of said mediators, for reserving and controlling a time-period in display said display information;

a plurality of computerized devices, situated in proximity to said public places, for coordinating and controlling select ones of a plurality of projectors in response to said projector control instructions, each of said computerized devices being electronically coupled to said computerized control center via one of said communication interfaces; and

wherein said display information in said exposure list specifies a content of display, a location of display, a timing of display, and a duration of display such that

16

said content, said location, said timing, and said duration are capable of being independently selected, and said exposure list enables each of said select projectors to independently and instantaneously receive information through said computerized devices.

14. The system of claim 13, further including a system administrator, capable of updating said exposure list with selective information and any time.

15. The system of claim 14, wherein said select projectors interrupt said display of information when said display is hidden, obstructed, or otherwise visibly unavailable in said public place.

16. The system of claim 15, further including protective devices to shield lenses of said select projectors from dirt.

17. The system of claim 16, wherein said select projectors are coupled to a projector computer which controls and feeds said display information to said projectors controlled by a station computer included in said computerized devices, said projector computer having a corresponding memory buffer for accommodating subsequently arriving display information while display information of a current display is erased from said buffer memory.

18. The system of claim 16, wherein a station computer included in said computerized devices is provided with a projector computer which controls and feeds display information to said projectors, said projector computer having a corresponding memory buffer for accommodating subsequently arriving display information while display information of a current display is erased from said buffer memory.

19. The system of claim 18, wherein said station computer is situated in one of said public places and includes databases with display information contained in said exposure list, said exposure list information capable of being copied into databases of other selected station computers situated in other public places.

20. The system of claim 19, wherein said exposure list includes a plurality of reserved instruction fields for updating display information with said control instructions received from said information mediators via one of said communication interfaces.

21. The system of claim 19, wherein said control instructions are placed in a queue when said exposure list lacks instruction fields for updating said control instructions.

22. The system of claim 21, further including a detector for determining whether a station computer is nonfunctional in order to permit projectors that are controlled by said nonfunctional station computer to be remotely controlled by a station computer situated at a different public place.

23. The system of claim 22, wherein said display information interruptions are used for monitoring by a system administrator to determine whether vehicles are running according to a schedule.

24. The system of claim 23, wherein each of said computerized devices include an electronic display with a control computer such that said select projectors supply the information to be displayed on said electronic display.